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Myxomycetes from China 15: *Arcyria galericulata* sp. nov.

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Abstract — A new species, *Arcyria galericulata*, is described and illustrated with scanning electron micrographs. This species is characterized by a helmet-like (galeiform) structure at the top of the sporocarp. Holotype and isotype specimens are deposited in the Herbarium of Mycological Institute of Jilin Agricultural University (HMJAU), Changchun, China.

Key words — SEM, taxonomy, *Trichiales*

Introduction

Arcyria is a common and important genus of *Trichiaceae*. Since Wiggers established the genus in 1780, more than 55 species have been reported (Kirk et al. 2008, Lado 2001, 2005–12), of which 29 species have been reported in China (Chen & Li 1999; Chou 1937; Li & Li 1989; Li et al. 1993; Liu et al. 2002; Wang & Li 1995, 1996, 2006). A new species found on bark surface of dead log in Jingyuetan National Forestry Park, Jilin province, China, in July, 2009 is described and illustrated below.

Materials & methods

The fruiting bodies and microscopic structures of the new species were examined by light and scanning electron microscopes (Martin & Alexopoulos 1969; Li et al. 1993) and compared with other morphologically similar *Arcyria* species. Permanent slides are mounted in Hoyer's medium (Martin & Alexopoulos 1969). Coloured slides were prepared according to Robbrecht (1974) by spreading capillitium in a drop of 94% alcohol, determining colour after one minute, and then mounting in Hoyer's. Colour terms are given according to Anonymous (1969). Voucher specimens are deposited in the Herbarium of Mycological Institute, Jilin Agricultural University (HMJAU).

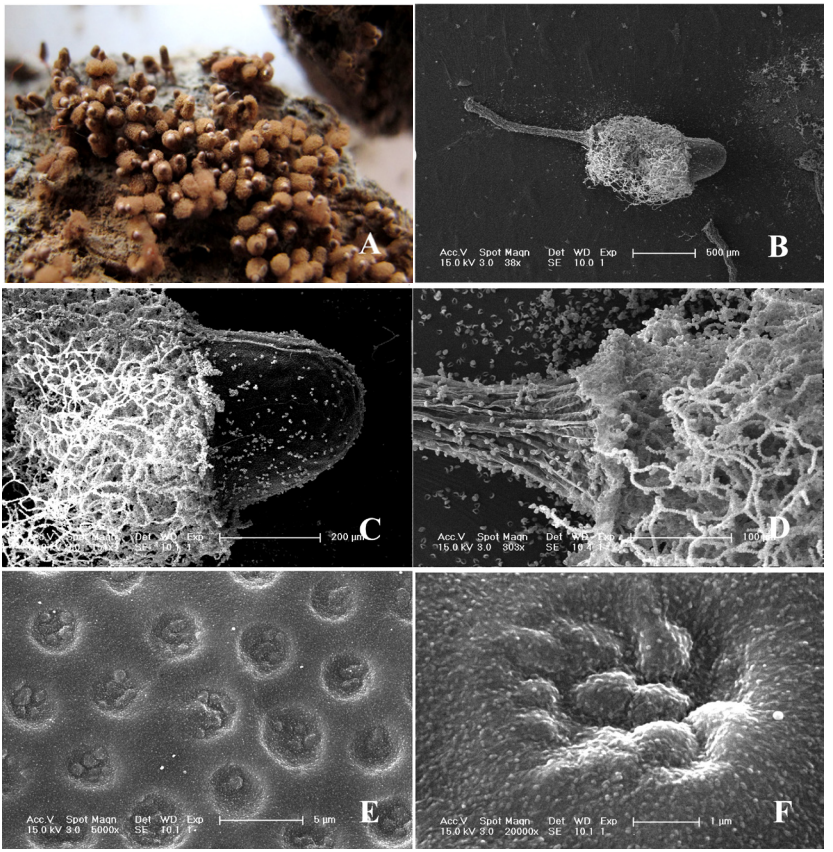

Plate 1. *Arcyria galericulata* (Isotype): A, fruiting bodies. B, a complete, expanded sporocarp. C, galeiform structure at the top of the sporocarp and part of expansion of the capillitium. D, part of the stalk, showing longitudinal striations, and part of calyculus and sporocarp. E, outer surface of a galeiform structure marked with regular circular depressions. F, warted interior of a depression.

Taxonomy

Arcyria galericulata B. Zhang & Yu Li, **sp. nov.** Plate 1–2

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Differs from *Arcyria papilla* by its smaller sporocarp with a larger helmet-like protuberance and larger spores.

Type—China, Jilin province, Jingyuetan National Forestry Park, on the bark of a dead log, 26 July 2009, Zhang Bo 0628 (**Holotype** HMJAU10244; **isotype** HMJAU10245).

Etymology—*galericulata* (Latin) = with a helmet-like covering, in reference to the galeiform protuberance at the top of the sporocarp.

Sporocarps aggregated or united in clusters of 3–8 (with fused stalks), stalked, erect, 1–1.5 mm in total height, 2–2.2 mm after expansion of the capillitium. Sporocarp obovoid or shortly cylindrical, fawn to snuff brown, fading to brown. Hypothallus common to a group of sporocarps. Stalk 0.8–1.0 mm long, dark brown by transmitted light, filled with spore-like cells, cells 18–20 μm diam. at the base of stalk, subglobose. Peridium single, membranous, persistent, with a helmet-like structure at the top of each sporocarp, outer surface of the structure marked with regular circular depressions with warted interiors. Calyculus translucent, saucer-shaped, light, yellow to colourless by transmitted light, inner surface with many prominent warts, low irregular ridges forming a net with small protuberances. Columella absent. Capillitium tubular, elastic, branched and anastomosed, pale orange yellow by transmitted light, 3 μm diam. without ornamentations, 5–6 μm diam. with ornamentations, firmly attached to the calyculus, decorated with many cogs, half-rings and rings with irregular edges, sometimes with a faint reticulation. Spores free, yellowish brown in mass, yellowish pale to colourless by transmitted light, 6–8 μm diam., densely warted, with scattered groups of more prominent warts.

Comments: *Arcyria galericulata* has a galeiform structure at the top of the sporocarp. Only one other *Arcyria*, *A. papilla* Ejale & L.S. Gill (Ejale & Gill 1992), has a similar papillate structure at the top of the sporocarp but the

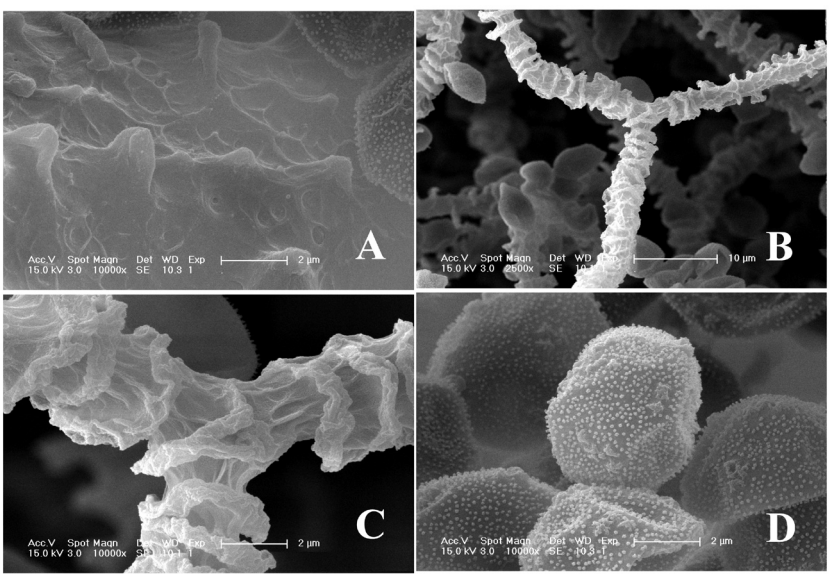

Plate 2. *Arcyria galericulata* (Isotype): A, part of calyculus, showing many prominent warts and low irregular ridges forming a net with small protuberances. B–C, part of capillitium, showing the ornamentation. D, spores.

papilla is smaller, the sporocarp is larger (about 4.4 × 1.0 mm after capillitial expansion), the capillitium is marked with spines occasionally interrupted by rings that form characteristic triangular loops, and the spores are smaller (~5 µm diam.) and double-walled.

The capillitial ornamentation of *A. galericulata* resembles that of *A. affinis* Rostaf., *A. helvetica* (Meyl.) H. Neubert et al., and *A. ferruginea* Saut. *Arcyria affinis* is distinguished by its reddish brown sporocarps (about 3–4 mm after capillitial expansion), a capillitium broken away leaving only a few ends attached to the stalk apex, and larger spores (about 7–9 µm in diam.) (Rostafinsky 1875). *Arcyria ferruginea* differs in its shorter stalk (about 0.2–0.6 mm long), capillitium tube 5–8(–10) µm in diam., and larger spores (9–12 µm in diam.) (Sauter 1841), while *A. helvetica* is differentiated by a deeply funnel-shaped calyculus and capillitium only attached to the calyculus at the center (Neubert et al. 1989).

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Literature cited

Anonymous. 1969. Flora of British Fungi: colour identification chart. Royal Botanic Garden Edinburgh, H.M. Stationery Off. 6 p

Chen SL, Li Y. 1999. A preliminary report on the myxomycetes from Zhangjiajie, Hunan Province. J. Wuhan. Bot. Res. 17(3): 217–219.

Chou ZH. 1937. Notes on myxomycetes from China. Bull. Fan. Men. Inst. Biol. 7: 257–278.

Ejale UA, Gill LS. 1992. Two new species of myxomycetes from southern Nigeria. Acta Mycologica 27(2): 267–269.

Kirk PM, Cannon PF, Minter DW, Stalpers JA. 2008 Ainsworth & Bisby's dictionary of the fungi. 10th Ed. CAB International, Wallingford 771 p.

Lado C. 2001. Nomenmyx: a nomenclatural taxabase of myxomycetes. Cuadernos de Trabajo de Flora Micológica Ibérica 16. 224 p.

Lado C. 2005–2012. An online nomenclatural information system of *Eumycetozoa*. http://www.nomen.eumycetozoa.com (Consulted April 15, 2012).

Li Y, Li HZ. 1989. Myxomycetes from China I: A checklist of Myxomycetes from China. Mycotaxon 35(2): 429-436.

Li Y, Chen SL, Li HZ. 1993. Myxomycetes from China X: Additions and notes to Trichiaceae from China. Mycosystema 6: 107–112.

Liu CH, Yang FH, Chang JH. 2002. Myxomycetes of Taiwan XIV: Three new records of *Trichiales*. Tainwainia 47(2): 97–105.

Martin GM, Alexopoulos CJ. 1969. The myxomycetes. University of Iowa Press. Iowa. 561 p. http://dx.doi.org/10.2307/1218569

Neubert H, Nowotny W, Baumann K. 1989. Myxomyceten aus der Bundesrepublik Deutschland V. Carolinea 47: 25–46.

Robbrecht E. 1974. The genus *Arcyria* Wiggers in Belgium. Bull. Jard. Bot. Nat. Belg. 44: 303–353 http://dx.doi.org/10.2307/3667676

Rostafinsky JT. 1875. Sluzowce monografia. Pamietn. Towarz.Nauk. Sci. Paryzu. 6(1): 216–432.

Sauter AE. 1841. Beiträge zur Kenntnis der Pilz-Vegetation des Ober-Pinzgaues in Herzogthume Salzburg. Flora 24: 305–320.

Wang Q, Li Y. 1995. Two new varieties of *Arcyria*. J. Jilin Agri. Univ. 17(4): 83–85.

Wang Q, Li Y. 1996. A new species of *Arcyria* myxomycetes. Bull. Bot. Res. 16(2): 179–181.

Wang Q, Li Y. 2006. *Trichiales* in China. Institute of Science Publish. 134p.